

REMARKS

Claims 2 and 4 were pending. Claims 2 and 4 were rejected. Claims 2 and 4 are being amended. Claims 2 and 4 remain pending. Reconsideration is respectfully requested.

Claim Rejections – 35 U.S.C. §112

The Examiner rejected claims 2 and 4 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement; specifically that the claims contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the art that inventor had possession of the claimed invention at the time of filing. Applicants traverse.

More specifically, what toxic materials and what bacteria are used were not described. Applicants submit that any bacteria that are electrochemically active can be used. It is well known in the art, for example, that *S. putrefaciens* and *G. sulfurreducens* are electrochemically active bacteria. See WO 01/04626 that states that electrochemically active bacteria are known and cites various journal articles regarding the same. See also *Gil et al.* "Operational Parameters Affecting the Performance of a Mediator-Less Microbial Fuel Cell," which discloses that *S. putrefaciens* is electrochemically active. As such, it is well known to a person of ordinary skill in the art at the time of filing that some bacteria are electrochemically active and therefore there is no need to disclose specific examples of the same in the specification.

Further, for example, an electrochemically active bacteria can be defined by a surface property having exposed cytochrome (an important electron transfer protein of electron transfer system) on its outer membrane. In particular, electron transfer sites of cytochrome are exposed on an outer side of bacteria. Therefore the bacteria attach to metal salts directly and transfer electrons generated at decomposition of organic materials to metal salts and grow using reduced power generated at this time.

Regarding toxic materials, the claims have been clarified that any toxic material affecting the bacteria can be tested.

Claim Objections

The Examiner object to claim 2 for an informality: "sample water." Applicants have amended the claims to "water sample."

Claim Rejections – 35 U.S.C. §112

The Examiner further rejected the claims under §112 for being indefinite as failing to particularly point out and distinctly claim the subject matter. As such, Applicants are amending the claims for purposes of clarification.

Claim 2 has been clarified to show that the sludge includes the bacteria and once added to the anode forms an enrichment culture. Claim 2 has further been clarified for antecedent basis.

Claim 4 has been clarified similarly to show the sludge includes the bacteria.

In other words, the activated sludge includes electrochemically active bacteria when introduced into an anode compartment of a fuel cell, then the bacteria attach to an electrode of anode compartment. With a fuel (e.g. glucose and glutamic acid of example 1) introduced, the attached active bacteria proliferate and form an enrichment culture. The bacteria and sludge don't attach/add sequentially.

As rejections have been overcome, Applicants submit that the application is in condition for allowance and request a Notice of Allowance be issued.

If the Examiner has any questions or needs any additional information, the Examiner is invited to contact the undersigned.

Respectfully submitted.  
Hyung Joo Kim et al.

Dated: 2/18/06  
Squire, Sanders & Dempsey L.L.P.  
600 Hansen Way  
Palo Alto, CA 94304-1043  
Telephone (650) 856-6500  
Facsimile (650) 843-8777

By   
Aaron Wining  
Attorney for Applicants  
Reg. No. 45,229